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## Mexican Lizards of the Genus *Eumeces*, with Comments on the Recent Literature on the Genus

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ABSTRACT: This paper deals with some 300 specimens of Mexican *Eumeces* (Family SCINCIDÆ), belonging to 14 species. It reviews the known distribution of all the Mexican species. Recent progress in the study of the genus is reported, and the recent literature is listed.

NOWHERE in the world is there as great a concentration of species belonging to the genus *Eumeces* as occurs in México. More than one-third of the known forms are to be found there, and nine of the fifteen groups are represented. At the time of the publication of my monograph (Taylor 1936), many of the Mexican forms were known from inadequate series, several from single specimens. Since the completion of that work, I have obtained a large collection of *Eumeces* from México, including the following species: *Eumeces schwartzei*, *altamirani*, *lynxe lynxe*, *lynxe furcistrostris*, *tetragrammus*, *brevilineatus*, *callicephalus*, *parviauriculatus*, *copei*, *brevistrostris*, *indubitus*, *dugesii*, *dicei*, *ochoterenae*. Aside from this series of fourteen species, *Eumeces parvulus* was rediscovered in Colima by Dr. James A. Oliver (1937); Dr. Hobart M. Smith\* obtained specimens of *Eumeces sumichrasti* in Chiapas and Guatemala.

Mr. L. M. Klauber obtained *Eumeces gilberti rubricaudatus* from North Coronado Island, Baja California. To my knowledge no specimens of *Eumeces obsoletus*, *humilis*, *colimensis*, *lagunensis*, or *skiltonianus skiltonianus* have been collected in México since 1935.

\* Dr. Hobart M. Smith has been of very much assistance in the preparation of this paper. He has read and criticized the work, and has supplied numerous bibliographical references. I express my appreciation to him for his help.

This series of Mexican forms may be arranged as follows in the groups proposed by Taylor (1936, p. 35):

<i>schwartzzei</i> group	{ <i>Eumeces schwartzzei</i> Fisher <i>Eumeces altamirani</i> Dugès
<i>lynxe</i> group	{ <i>Eumeces lynxe lynxe</i> (Wiegmann) <i>Eumeces lynxe fureirostris</i> (Cope)
<i>sumichrasti</i> group	<i>Eumeces sumichrasti</i> (Cope)
<i>brevilineatus</i> group	{ <i>Eumeces brevilineatus</i> Cope <i>Eumeces edlicephalus</i> Bocourt <i>Eumeces tetragrammus</i> (Baird)
<i>obsoletus</i> group	<i>Eumeces obsoletus</i> (Baird and Girard)
<i>multivirgatus</i> group	{ <i>Eumeces humilis</i> Boulenger <i>Eumeces parvulus</i> Taylor <i>Eumeces parviauriculatus</i> Taylor
<i>antnracinus</i> group	<i>Eumeces copei</i> Taylor
<i>skiltonianus</i> group	{ <i>Eumeces skiltonianus skiltonianus</i> (Baird and Girard) <i>Eumeces gilberti rubricaudatus</i> Taylor <i>Eumeces lagunensis</i> Van Denburgh
<i>brevirostris</i> group	<i>Eumeces brevirostris</i> (Günther) <i>Eumeces indubitus</i> Taylor <i>Eumeces dugesi</i> Thominot <i>Eumeces colimensis</i> Taylor <i>Eumeces dicei</i> Ruthven and Gaige <i>Eumeces ochotrenae</i> Taylor

The *brevirostris* and *skiltonianus* groups are probably connected by *Eumeces lagunensis*. It has the characteristic temporal arrangement of the former but the red tail suggests a relationship with *gilberti rubricaudata* of the latter group.

#### *Eumeces schwartzzei* Fischer

*Eumeces schwartzzei* Taylor, Univ. Kansas Sci. Bull., 23, No. 1, 1935 (Aug. 15, 1936), pp. 94-102, pl. 1, text figs. 5-6, (synonymy); Smith, Occ. Papers Mus. Zoöl., Univ. Michigan, No. 338, Oct. 31, 1938, p. 17 (Campeche).

Dr. Hobart M. Smith in 1936 obtained two specimens of this striking species in Campeche: one, (EHT-HMS No. 11511) at Tres Brazos and the other (No. 11512) at Encarnación. Both are typical as regards color pattern and squamation.

No. 11511. In this specimen the median dorsal scales between the parietals and a point above the anus are arranged as follows: nuchals, 4 left, 5 right, followed by 11 pairs of broadened scales; these in turn are followed by 41 broad single median scales, after which there are five paired scales. There are three presuboculars and four postsuboculars, a postnasal, eight upper labials, 3-4 strongly-defined ear lobules. The frontoparietal touches the frontal and the parietals are separated narrowly behind the interparietal. The primary temporal is in contact with the lower posterior temporal, the latter hav-

ing an area about equal to the eighth labial. 21 scales around the middle of the body, 26 about the neck.

No. 11512. In this specimen the  $5\frac{1}{2}$  pairs of nuchals are followed by 9-10 paired scales, and 45 widened median scales. From the last scale to the point above the anus there are three pairs of scales. The labials, presuboculars, temporals, internasal, frontonasal, and scale rows, are the same as in the preceding specimen. The post-suboculars are 4-3, and the auricular lobules are 3-3. The dots on the ventral scales of No. 11511 tend to form more or less distinct lines, while in No. 11512 the ventral scales are almost lacking in dots.

Doctor Smith has more recently taken two specimens at Tenosique, Tabasco, and four at Piedras Negras, Petén, Guatemala, near the Chiapas border, and very probably it will be taken sooner or later in Chiapas. In México it is known to occur in Campeche and Yucatán; in Central America, in Guatemala and British Honduras.

*Eumeces altamirani* Dugès

*Eumeces altamirani* Taylor, Univ. Kansas Sci. Bull., 23, No. 1, 1935 (Aug. 15, 1936), pp. 102-104, pl. 2, text fig. 6; and Proc. Biol. Soc. Washington, 49, May 1, 1936, pp. 55-58.

The type, together with the four specimens (EHT-HMS, Nos. 10230-10233) collected by Dr. Hobart M. Smith at El Sabino, Michoacán (reported in detail by Taylor, May 1936, *loc. cit.*), constitute the only known specimens of this rare species. However, the characters that obtain leave no doubt as to its complete distinctness from other species of the genus. The form is not known to occur outside of the state of Michoacán.

*Eumeces lynxe lynxe* (Wiegmann)

*Eumeces lynxe lynxe* Taylor, Univ. Kansas Sci. Bull. 23, No. 1, 1935 (Aug. 15, 1936), pp. 163-173, pl. 41, fig. B; text figs. 18, (map), 19, (squamation of head) (synonymy).

In my previous treatment of this form (*loc. cit.*) I was in doubt as to the geographic location of the type locality. I am now of the opinion that the "Chico" mentioned by Wiegmann is El Chico, or Mineral del Chico, near Pachuca, Hidalgo. I have found the species to be common in this general region (El Chico National Park).

I was somewhat in doubt as to the value of the subspecies, *Eumeces lynxe furcivostris* (Cope), and stated that its recognition depended upon an accumulation of more material. Since that time I have obtained some 59 specimens of *E. lynxe* from various localities in Hidalgo, Veraacruz and Puebla, and find that the eastern populations have a much reduced anterior supraocular which is usually separated from the frontal.

Of the 59, I regard 35 as being *Eumeces lynxe lynxe* (Wiegmann). These are from the following localities in Hidalgo: EHT-HMS Nos. 16234-16255, between Minas Viejas and Durango; 19113, El Chico National Park; 19114-19116 Guerrero; 19117, south of Zacualtipan; 19118, near Tianguistengo; 22220-22223, Durango; 23910-23912, 8 km. south of Tianguistengo; 23913, El Chico.

The largest specimen, typical in every way, measured 70 mm. from snout to vent, while the tail measured 102 mm. Four supraoculars are present in 34 specimens, three only are present in one. There are three supraoculars in contact with the frontal in 27 cases; 3 on one side, 2 on the other in 4 cases; and five cases in which there are 2 only on each side of the frontal. The scale rows around the middle of the body are 24 in 25 specimens; 23 in 4, 22 in 4, and in one 26. In two specimens having perfect tails the subcaudal scale counts are 85 and 86. In 16 specimens the prefrontals are separated; in 18 they are in contact. One specimen has a third (median) prefrontal.

The subspecies is known from the following Mexican States: Hidalgo, Veracruz, San Luis Potosí and northern Puebla. The old records of the species in Michoacán, Guerrero, and Guanajuato must be verified before being accepted.

*Eumeces lynxe furcirostris* (Cope)

*Eumeces lynxe furcirostris* Taylor, Univ. Kansas Sci. Bull., 23, No. 1, 1935 (Aug. 15, 1936), pp. 173-178, text figs. 18, 20 (see this work for synonymy).

Specimen of *lynxe* from Veracruz are interpreted as belonging to the subspecies *furcirostris* or as representing intergrades between *lynxe lynxe* and *lynxe furcirostris*. The anterior supraocular is reduced or wanting (that is, fused with the anterior supraciliary). In the greater part of the specimens there are but two supraoculars in contact with the frontal.

The following 24 specimens have been added to the collection: EHT-HMS Nos. 19109-19112 A, Cofre de Perote, Veracruz; 28809-28810, km. 291-292 near Las Vigas, Veracruz; 28835-28843 between La Joya and Las Vigas, Veracruz; 28827-28834, near Tezuitlán, near Puebla-Veracruz state line (perhaps from both states).

In these, four supraoculars occur 15 times; four on one side, three on the other, 5 times; and three, 4 times. In these, 15 have only two supraoculars touching the frontal, while 8 have three; 20 have 24 scale rows about the middle of the body, 2 have 25 rows, one has 26. Subcaudal counts for three specimens having complete tails are 80, 81, 84. The prefrontals are in contact 14 times, and separated 10

times. This form is known from eastern Veracruz and western Puebla.

The characters by which the two forms may be separated are as follows:

- A. 4 supraoculars, three touching the frontal; the first not reduced or fused to the first supraorbital . . . . . *l. lynce*.
- B. 4 or 3 supraoculars, two touching frontal, the first reduced or fused to supraorbital . . . . . *l. furcistrois*.

It would appear from the above data that of this lot of *furcistrois* only 67 percent are identifiable on the basis of the supraocular character. However, it is probable that certain specimens are intergrades and should be excluded from the computation of the percentages. It may be pointed out that the specimens are from a relatively limited area and it is likely that collections made farther to the east and southeast would show a higher percentages of differentiation with fewer forms displaying intergrading characters. I am not prepared to abandon the name *furcistrois* for this population, until this possibility is disproved.

#### *Eumeces sumichrasti* Cope

*Eumeces sumichrasti* Taylor, Univ. Kansas Sci. Bull., 23, No. 1, 1935 (Aug. 15, 1936), pp. 178-186, pl. 12, text figs. 21, 23 (synonymy).

Dr. Hobart M. Smith found this species to occur rather commonly in Chiapas, and the closely adjoining region of Guatemala. He supplies the following localities: Palenque, Chiapas (3 spec.); La Esperanza, Chiapas (4 spec.); and Piedras Negras, Petén, Guatemala (4 spec.). These specimens, now in the United States National Museum, have not been examined by me.

The species is known from the Mexican states of Veracruz, Chiapas. In Central America, it is known from Guatemala, Honduras, and British Honduras. It is a lowland form for the most part.

#### *Eumeces callicephalus* Bocourt

*Eumeces callicephalus* Taylor, Univ. Kansas Sci. Bull., 23, No. 1, 1935 (Aug. 15, 1936), pp. 290-298, pl. 23, text figs. 44-45; Proc. Biol. Soc. Washington, 49, May 1, 1936, pp. 55-58 (Magdalena, Jalisco); Taylor and Knobloch, Proc. Biol. Soc. Washington, 53, Oct. 7, 1940, p. 127 (Sierra Madre Mountains [Mojárahic] Chihuahua).

The specimens EHT-HMS Nos. 10392-10395 from Magdalena, Jalisco, reported by Taylor (1936), and No. 23109, from Mojárahic, Chihuahua, reported by Taylor and Knobloch (1940) *loc. cit.* are apparently the only recent collections of this form. However, this species is well known, and established on a sound basis.

The species is known in México from Chihuahua, Durango, Zacatecas, Guanajuato, Nayarit and Michoacán (the record for the last state needs to be verified). It also occurs in Arizona.

*Eumeces brevilineatus* Cope

*Eumeces brevilineatus* Taylor, Univ. Kansas Sci. Bull., 23, No. 1, 1935 (Aug. 15, 1936), pp. 283-290, pl. 22, text figs. 41, 42, 43.

This species is represented in the recent collections by a young specimen taken in the palm forests 26 km. north of El Limón, Tamaulipas (km. 609) (EHT-HMS No. 14497). In this the dorso-lateral lines are reddish orange anteriorly, becoming more yellowish posteriorly, and terminating before the middle of the body is reached. The tail is blue, the body deep black. The edges of the lips and throat are red orange, while the chin is whitish. The posterior part of the abdomen is blackish, the anterior greenish white.

In México the species is known from Nuevo León, and Tamaulipas. It is widely distributed in southern Texas.

*Eumeces tetragrammus* (Baird)

*Eumeces tetragrammus* Taylor, Univ. Kansas Sci. Bull., 23, No. 1, 1935 (Aug. 15, 1936), pp. 298-304, fig. 46, distribution (synonymy).

I collected a specimen of this rare form  $3\frac{1}{2}$  miles west of El Forlón, Tamaulipas (EHT-HMS 10390), and two specimens south of Antigua Morelos, No. 10391 at km. 516, and No. 29684, at km. 532 both in the state of San Luis Potosí.

No. 29684 is an adult male. However, the dorsolateral lines can be seen to the base of the tail, and the underside of the tail is somewhat bluish. The chin and throat are white, the color extending, and including all save the upper edge of the upper labials. The following characters obtain: Frontonasal separated from frontal; interparietal not enclosed; two pairs of nuchals; lower secondary temporal larger than primary; tertiary temporal large, separated by two scales from the auricular opening; seventh labial followed by two pairs of large, and one pair of small postlabials; auricular lobules two or three, small; 28 scale rows around middle of body 30 around narrow part of neck; 1 postmental; 60 scales from parietals to above anus; 106 widened subcaudals under complete tail. Snout to vent, 63 mm.; tail, 109. The adpressed limbs touch.

In both Nos. 10390, 10391, the dorsolateral lines continue on base of tail, while the lateral line can be traced a similar distance. They have 26 and 28 scales, respectively; the nuchals are 3-1, and 3-3. Length snout to vent, 70 mm. and 53, respectively. In most of the other scale characters they conform to the preceding specimen.

*Eumeces obsoletus* Baird and Girard

*Eumeces obsoletus* Taylor, Univ. Kansas Sci. Bull., 23, No. 1, 1935 (Aug. 15, 1936), pp. 305-320 pl. 24; text figs. 47-48 (synonymy and monographic treatment).

This species, widely distributed in the United States, is known in México from the states of Tamaulipas, Nuevo León and Chihuahua. No recently collected specimens have been seen.

*Eumeces humilis* Boulenger

*Eumeces humilis* Taylor, Univ. Kansas Sci. Bull., 23, No. 1, 1935 (Aug. 15, 1936), pp. 358-363 (part.), fig. 59.

Smith has recently reviewed the specimens referred by Taylor (*loc. cit.*) to the species *Eumeces humilis*, and believes the northern specimens from Texas and New Mexico are separable on the basis of two postmentals, widened subcaudals and the absence of dorso-lateral light lines. Both Mosauer (1932) and Taylor (1936) are in error in stating that the Texas specimens have an undivided postmental as is true of *humilis*.

The species is therefore known only from the types; and its known distribution is the type locality, Presidio, [presumably] Sinaloa, México.

*Eumeces parvulus* Taylor

*Eumeces parvulus* Taylor, Proc. Biol. Soc. Washington, 46, Oct. 26, 1933, pp. 175-178, fig. 1 (Type description; type locality, Tepic, Nayarit, México); and Univ. Kansas Sci. Bull., 23, No. 1, 1935 (Aug. 15, 1936), pp. 363-367, pl. 31, figs. 3, 4; text figs. 59, 60; Oliver, Occ. Papers Mus. Zool., Univ. Michigan, No. 360, Nov. 20, 1937, p. 12 (Paso del Río, Colima).

Since the description of this small species appeared, originally based on three specimens, only a single specimen has been reported, this by James A. Oliver, who obtained it at Paso del Río, Colima. He reported that it differed from the type in having a larger posterior loreal and a smaller anterior one, while the median scale rows appeared to be slightly larger.

In México the species is known from Colima, Nayarit and Sinaloa.

*Eumeces parviauriculatus* Taylor

*Eumeces parviauriculatus* Taylor, Proc. Biol. Soc. Washington, 46, Oct. 26, 1933, pp. 178-181, fig. 2 (type description; type locality, Alamos, Sonora); Univ. Kansas Sci. Bull., 23, No. 1, 1935 (Aug. 15, 1936), pp. 368-371, pl. 31, fig. 5; text figs. 59-61; Taylor and Knobloch, Proc. Biol. Soc. Washington, 53, Oct. 7, 1940, pp. 128 (Mojarachic, Chihuahua).

Only three specimens of this diminutive species have been discovered; the type, and two specimens reported by Taylor and Knobloch (1940).\* The latter specimens extend the known range to

\* All the specimens reported in Taylor and Knobloch (1940) were obtained in a radius of ten miles from Mojarachic, Chihuahua, unless otherwise stated.

the north and west of the type locality to Mojárachic, Chihuahua, a distance of about 75 miles.

One of the two specimens, (EHT-HMS, No. 18983), lacks a head and while I believe it to be the same species, there is no absolute certainty. It is young and exceedingly slender. A complete tail is present, showing 98 widened subcaudals.

This species appears to be well-characterized by the greatly enlarged lower secondary temporal, much larger than the seventh supralabial, the small ear, and scale rows which number 20.

It is only known from southern Sonora and western Chihuahua.

*Eumeces copei* Taylor

*Eumeces copei* Taylor, Proc. Biol. Soc. Washington, Vol. 46, June 30, 1933, pp. 133-137 (type description; type locality 10 miles southeast of Asunción, western México); and Univ. Kansas Sci. Bull., Vol. 23, 1935, Aug. 1936, pp. 387-394, pl. 33. Text figs. 64, 65.

This species proves to be a common one in a limited region in the southern part of the Mexican plateau. It is an isolated member of the *anthracinus* group, its nearest relative *septentrionalis obtusirostris*, being separated, presumably, by a distance equal to that between México (city) and Texas.

The following specimens have been added to the collection; EHT-HMS coll. Nos. 10256-10269, 19000-19065, 22230, 26212-26214, near Lake Zempoala (Cempoala), Morelos; Nos. 19066-19074, mountains west of Río Frío, México, between 9,000 to 10,000 feet elevation; Nos. 19075, 8 miles west of Villa Victoria, Sept. 1, 1938; 19076, 3 miles west of Zinacantepec (Zinganzantepec) México; 19078, 9 miles west of Zacapú, near Cerro de Tecolote, Michoacán; Nos. 22227-22229, 22230-22235, 22589-22600, near Río Frío, México, (a few from these series were obtained east of the town, in the state of Puebla.

These acquisitions bring the total number of specimens of this species up to 75. The range has been extended somewhat, and it is now known from Eastern Puebla, México, Distrito Federal, Morelos, and Michoacán.

All the specimens hold to the typical color markings with a remarkable tenacity. This pattern consists of a broad black lateral band on which are two sharply defined, narrow, white or cream-white lines. The primary temporal and the lower secondary temporal are similar in size and are almost invariably in contact. There are narrow, dark brown stripes on the back, which may become obsolete in old males; however, the dark lateral stripe and the narrow light lines are not lost.



The habitat of the species is the same as that of *Eumeces indubitus*, both reaching an elevation of 10,000 to 11,000 feet, and probably not occurring lower than 7,000 feet.

*Eumeces skiltonianus skiltonianus* (Baird and Girard)

*Eumeces skiltonianus skiltonianus* Taylor, Univ. Kansas Sci. Bull., 23, No. 1, 1935 (Aug. 15, 1936), pp. 415-428, pls. 35-36, figs. 2, 3, 4; text fig. 68.

The species occurs at sea level on the Todos Santos and Coronados Islands and on the mainland of Baja California at elevations up to 7,500 feet. Further study of these and other specimens of the United States may warrant the separation of other subspecific forms.

In México, it is known only from northern Baja California. It is widely distributed in western United States, its range extending into Canada.

*Eumeces lagunensis* Van Denburgh

*Eumeces lagunensis* Taylor, Univ. Kansas Sci. Bull., 23, No. 1, 1935 (Aug. 15, 1935), pp. 431-437, pl. 36, fig. 1; text figs. 69-70.

This form is known to occur only in the southern part of Baja California. The character of the temporal scales of this species would seem to ally the *skiltonianus* group with the *brevirostris* group. The form might be associated equally well with either.

*Eumeces gilberti rubricaudatus* Taylor

*Eumeces gilberti rubricaudatus* Taylor, Univ. Kansas Sci. Bull., 23, No. 1, 1935 (Aug. 15, 1936), pp. 446-451, pl. 39, text figs. 72-73. (Type description.)

In a letter dated August 24, 1936, Mr. L. M. Klauber writes to me that he had obtained two specimens of *Eumeces gilberti rubricaudatus* from North Coronado Island, Baja California. Both had "very bright red tails."

*Eumeces colimensis* Taylor

*Eumeces colimensis* Taylor, Univ. Kansas Sci. Bull., 23, No. 1, 1935 (Aug. 15, 1936), pp. 478-485, pl. 40, fig. 3; text figs. 76, 80.

This species, well-differentiated from all Mexican forms by the strongly developed limbs, overlapping in the adult, the length of the foot, is still known only from Colima, México, the type locality.

*Eumeces indubitus* Taylor

*Eumeces indubitus* Taylor, Univ. Kansas Sci. Bull., 23, No. 1, 1935 (Aug. 15, 1936), pp. 466-472, pl. 42; text figs. 76, 78 (synonymy).

Specimens of this species mentioned by field numbers in Taylor (1936 *loc. cit.*), 1671, 1673, 1674, 1696, 1722, 1723, 1725, 1726, 1727, 1728, 1729, 3595, are now EHT-HMS Nos. 10318-10329 respectively.

All are from the region about km. 63, between Cuernavaca and Tres Cumbres (Tres Marias) except the last, which is from near Asunción, México. Nos. 3587, 3588, 3590, 3591, 3594, 3596, 3597, 3598, 3599, 3600, 3601, 3592, 3593 are 10344-10356 respectively, from near Asunción, México; No. 1697 is 10357 from 5 km. south of Tres Cumbres, Morelos.

The following have been collected since the completion of the monograph: EHT-HMS Nos. 10332-10343, between kms. 58 and 66, between Cuernavaca and Tres Cumbres (Tres Marias), Morelos; Nos. 22224-22225, near Tepoztlán, Mor.; No. 23898, Zempoala, Mor.; No. 19085, Huajintlán, Mor.; and 19089, Puerto Hondo, Michoacán.

This species may be distinguished by the enclosed parietal, and the short, labial, light line which does not normally extend beyond the auricular opening. However, two young specimens, Nos. 19085 and 19089, have the labial line extending a little beyond the ear.

The form is known from Morelos, México, and Michoacán, sharing this range with *Eumeces copei*.

#### *Eumeces brevirostris* (Günther)

*Eumeces brevirostris* Taylor, Univ. Kansas Sci. Bull., 23, No. 1, 1935 (Aug. 15, 1936), pp. 459-466, pl. 41; text figs. 76, 77 (synonymy).

The following represent acquisitions of this species since 1935: EHT-HMS Nos. 10379-10382, 19086, 28844-28846, Totalco, Veracruz; Nos. 19088, 23903-23906, Cerro San Felipe, Oaxaca, Oaxaca; Nos. 23916-23918, 23920, 23931, Omilteme, Guerrero; No. 27469, San José Lachiguiuri, Oaxaca; Nos. 28811, 28812, near Laguna San Bernardino (near Puebla-Veracruz border), probably in Veracruz; Nos. 28813-28817, east of Río, Frío, (México) in Puebla; Nos. 28818-28826, near El Seco, Puebla (Km. 205 on highway).

The present accepted range of this form is remarkable. It occurs in Puebla, Vera Cruz, Oaxaca, Guerrero, Michoacán, Jalisco, and Durango, a range almost surrounding the area in which occurs *Eumeces lynce, copei, dugesi*, and *indubitus*.

#### *Eumeces ochoterenae* Taylor

*Eumeces ochoterenae* Taylor, Proc. Biol. Soc. Washington, 46, June 30, 1933, pp. 129-133 (type description; type locality, Mazatlán, Guerrero actually 22 km. by highway south of Chilpancingo); and Univ. Kansas Sci. Bull. 23, 1935 (Aug. 15, 1936), pp. 485-489, pl. 43; text figs. 76, 82.

The original series of eleven specimens has been augmented by the addition of 25 more, all collected in the central part of the State of Guerrero. These latter specimens are from the following localities:

EHT-HMS Nos. 19079-19080, Agua del Obispo, July 6, 1938; 22226, 7 mi. east of Chilpancingo, July 1939; 23899-23902, Agua del Obispo, Aug. 1940; 23932, Mazatlán, (22 km. by highway south of Chilpancingo. Not "4 miles north" as stated by Taylor "Eumeces" p. 485, and 489, and in type description); 23933-23947, Vicinity of Chilpancingo, chiefly, about 4 miles north, Aug. 1940.

None of the listed specimens exceed 53 mm. snout-to-vent measurement. So I presume the type (the largest specimen of the type series) is probably very near to the maximum size of the species (56 mm.).

I find no significant variation in color pattern. The blue color of the tail, normally lost in the adult of many species, has not been lost in any of the specimens collected.

Twenty-two scale rows about the middle body is probably normal but if count is made somewhat farther forward there will be 24. Occasionally the extra row extends back to the middle on one side or the other, resulting in a count of 23 or 24. I have found a single postmental, 2 pairs of nuchals, no postnasal, and seven upper labials to be invariable. In five cases the frontonasal was in contact with the frontal, while in two cases the parietals enclosed the interparietal. The greatest variation obtains in the temporal region. The anterior temporal varies considerably in size and may be absent altogether, that is, fused to an adjoining scale, usually the upper primary temporal. This condition occurs in two specimens. The primary temporal is in contact with the lower secondary temporal 22 times out of 46; the seventh upper labial touches the upper secondary temporal 24 times out of 46, consequently it is difficult to determine which is to be regarded the "normal" condition of temporal scutes.

The species is known only from Guerrero, México.

### *Eumeces dugesii* Thominot

*Eumeces dugesii* Taylor, Univ. Kansas Sci. Bull., 23, No. 1, 1935 (Aug. 15, 1936), pp. 472-478, pl. 43; text figs. 76, (map), 79, (squamation). See this work for synonymy.

Two specimens of this species, which I obtained in Michoacán, one (No. 19081) Sept. 7, 1938, 9 miles west of Zacapú, Michoacán, near Cerro de Tecolote, and a young one (No. 29691) Aug. 16, 1942, on the Uruapan road near Carapa (km. 7), add nothing to the known distribution of this form.

No. 19081. The dorsal surface is uniform light bronze. It is bordered laterally by a moderately distinct, cream line, that follows the third scale row to the base of the tail and is thus separated from

its fellow by four rows of wide dorsal scales. The light labial line is separated from the labial edge by a darker stripe and continues back through the ear to a point behind the arm. The brown lateral stripe is distinct, covering two whole scale rows and edges of the two adjoining rows.

Three characteristic supraocular scales are present, the anterior very large, touching the prefrontal; and six superciliaries, the first large, but separated from contact with frontal, while the small interparietal is completely enclosed behind by parietals. The anterior temporal, normally small, is greatly reduced on the right side. The two postlabials and the tertiary temporal are relatively large. The scale rows are 22 at midbody and 26 about the neck. There are 62 scales intervening between the parietals and a point above the anus. There are 12 lamellae under the fourth toe, and the adpressed limbs are separated by 9 scales.

No. 29691. There are 24 scale rows about the body, 26 about neck. Three supraoculars are present, two touching the frontal. The interparietal is enclosed by the parietals, and the frontonasal is broadly in contact with the frontal. The primary temporal is absent, fused to the upper secondary. The adpressed limbs overlap. The snout to vent length is 33 mm. The dorsolateral white stripe can be traced on the anterior third of the body; while the labial line which passes through the lower part of the ear can be traced to a point a short distance behind the arm.

This species is known certainly only from Guanajuato and Michoacán.

#### *Eumeces dicei* Ruthven and Gaige

*Eumeces dicei* Ruthven and Gaige, Occ. Papers Mus. Zool., Univ. Michigan, No. 260, Apr. 3, 1933, pp. 1-3 (type description; type locality, Marmolejo, Tamaulipas, México); Taylor, Univ. Kansas Sci. Bull., 23, No. 1, 1935 (Aug. 15, 1936), pp. 482-485, figs. 76 (map), 81 (head squamation); Dunn, Acad. Nat. Sci., Philadelphia, 88, 1936, Oct. 20, 1936, p. 476 ("Cieneguillas" south of Galeana, Nueva León, 3 specimens; above Pablillo, 8200 ft., Nuevo León, one specimen (the El Salto, Durango specimen belongs to another species).

The species was originally founded on a single individual; this an immature specimen, 47 mm., snout-to-vent measurement. I have examined eight more specimens and seven embryos of this species. A study of these specimens establishes the species on a sound basis, and gives more certainty as to its relationships. I had presumed the adult to be smaller than is actually the case, and I pointed out certain similarities to *Eumeces egregius*. However, I do not now believe them to be related, save remotely.

The relationship is certainly with the *brevirostris* group. The anterior temporal is normally absent, but there is normally present

a very reduced lower secondary temporal (fused to the seventh labial or the tertiary temporal in the type).

The scales about the ear opening average about 15 or 16, while in the type the number counted was eleven, suggesting a somewhat smaller ear opening or slightly larger scales. The interparietal is broad, slightly truncate behind, and is never enclosed by the parietals (16 cases). The frontonasal is normally separated from the frontal, but in three cases they are in contact, the prefrontals being consequently separated. The presence of two nuchals, a single postmental, no postnasal, two presuboculars, four supraoculars, internasals in contact and frontoparietals in contact, appear to be constant characters. Three supraoculars touching the frontal is normal, yet a single specimen shows only the two middle ones so arranged.

The scales on the sides of the body are perhaps a little smaller than the dorsal rows, but in females with bodies distended with eggs or embryos, they appear to be nearly the same size. The subcaudal scales are much widened, the number (in two complete counts) being 74, and 76. The scale rows around the middle of the body are 22-(24) while at axilla the rows are above 30 in number. The minimum number about the neck varies between 24 and 26, the latter number being more common, the smaller number occurring but once. The scales from the parietals to the point above the anus average about 60, varying between 56 and 62, the larger numbers being in females. The sixth labial approaches or equals the last (seventh) labial in size. The small scale following the seventh labial, and (usually bordering the auricular opening), is not to be considered a labial scale.

The adpressed limbs are separated from each other by 10-14 scales in females; 5 to 7 in males, in adult and subadult specimens. In very young specimens the limbs touch, or slightly overlap.

The species is ovoviviparous. Of the three adult specimens in my collection from Pablillo, Nuevo León, collected by H. Radcliffe Roberts, one contains three embryos; another, one embryo and an egg mass showing no trace of an embryo; a third has four embryos, three of which appear nearly ready for birth; the fourth, with a large mass of yolk is apparently a very much younger embryo. A young specimen, 25 mm., snout-to-vent, was taken at the same time.

I have been enabled to study the four specimens in the Academy of Natural Sciences of Philadelphia, thanks to the courtesy of Charles M. B. Cadwallader, President of that Institution.

Known only from Nuevo León and Tamaulipas in México.

Since the publication of the Taylor (1936) monograph on the genus *Eumeces*, a rather considerable literature has appeared dealing with the genus. This includes new and important distributional data; the descriptions of new forms; habits; and usage and comments on the taxonomy. I note herewith certain of these, and add certain corrigenda on the Taylor work.

#### DISTRIBUTIONAL DATA

The following are some distributional data of importance: *Eumeces obsoletus* has been traced into Missouri by Paul Anderson (1942); Anita Daugherty (1942) reports specimens of *Eumeces multivirgatus* from Topock, Mohave county, Arizona, the westernmost record. *Eumeces egregius* is reported from Alabama by Carl P. Kauffeld (1941) and from west of Atlanta, Georgia, by Wilfred T. Neill (1940). *Eumeces skiltonianus skiltonianus* is reported by Thomas L. Rodgers and William L. Jellison from Montana, the first record of the genus within the state boundaries. Karl P. Schmidt (1941) reports *Eumeces sumichrasti* and *Eumeces schwartzci* from British Honduras.

The presence of *Eumeces fasciatus* in Florida is questioned by Coleman J. Goin (1940). An examination of the specimens reported by Taylor (1936, p. 207) together with an inquiry as to their source leads to the conclusion that the specimens have incorrect locality data. The presence of the species in the neighboring territory of Georgia is not questioned.

A record for *Eumeces brevilineatus* from Imboden, Lawrence county, Arkansas, is given by S. C. Dellinger and J. D. Black (1938). As the record places the form so far from its known range it seems likely that some mixup in data may be responsible; at any rate its presence in Lawrence county, Arkansas, should be attested by other specimens before the range is extended to include this region of Arkansas.

#### NEW FORMS DESCRIBED

A few new species have been recognized and described. It would appear that all the newly named forms merit nomenclatorial designation.

*Eumeces tandoensis* Bourret, Tam-dao, French Indo China. This species is presumably related to *Eumeces elegans*. "Ce Lézard diffère de *E. elegans* par la présence d'une postnasale, et de deux postmentales impaires au lieu d'une, et par le dessin de la tête chez le jeune."

*Eumeces coreensis* Doi and Kamita, West Corea. This species is said to be related to *Eumeces chinensis*.

*Eumeces schneideri variegatus* Schmidt, Persepolis, Iran. "Allied to *Eumeces schneideri*, from which it is distinguished by its vermiculate or mottled pattern, and its more numerous nuchals. Distinguished from *Eumeces zarudnyi* in having only four auricular lobules and no lateral line."

(*Eumeces chinensis* var. nov. is listed by Pen and Ho [1932] who do not offer a name for the form.)

#### HABITS

Thos. G. Scott and Reuben B. Sheldahl (1937) present a short note on hibernation of *Eumeces septentrionalis*:

"The skinks were found beneath a ledge of yellow clay about four and one-half feet below the surface. The lizards, 52 in number, were assembled in a compact group about the size and shape of a football. A soft web-like material surrounded the mass and adhered to the bodies of the animals. Upon being uncovered some of them exhibited signs of life by a slight movement; others were dead." The date of this discovery was February 15.

#### TAXONOMY

The nomenclatorial changes and the forms proposed by Taylor (1936) have met with varying favor. At the present time most workers recognize the three American species, *Eumeces fasciatus*, *laticeps* and *inexpectatus*, although at first some doubt was cast on the validity of the species, presumably because an insufficient number of specimens were available to the worker concerned or too few specimens had been examined.

See: Barbour and Carr (1940), Beck (1938), Conant (1932, 1938a), Dellinger and Black (1938), Henning (1938), Jopson (1940), King (1939), McCauley (1939a, 1939b important paper on the differences in the young of *fasciatus* and *laticeps*, 1940), Netting (1936b), Parker (1939), and Turner (1935).

A notable exception is Burt (1937), who places *inexpectatus* and *laticeps* in the synonymy of *fasciatus*, even after having examined considerable material.

The separation of *Eumeces egregius* into two forms, either as subspecies or as full species, apparently is generally accepted. Although treating *egregius* and *onocrepis* as subspecies, Taylor was himself uncertain whether specific or subspecific designation showed the correct relationship (see Taylor, 1936, p. 496).

Three new specimens of *Eumeces gaigei* Taylor have been reported by Bailey (1937).

The status of the western skinks of the *skiltonianus* group has received little comment, and remains much as suggested by Taylor. A study of this group is under way at the present time, which may bring additional evidence to prove or disprove the present arrangement.

Perhaps the proposal to recognize the north African and western Asiatic forms as distinct species rather than subspecies of a single species has met with the least favor. A posthumous paper by Franz Werner points out certain errors in Taylor's work and concludes that at least *Eumeces pavimentatus* is a subspecies of *schneideri*. He criticizes Taylor for recording the color markings of preserved specimens (see Taylor, 1936, p. 25). One of the most interesting comments in his general criticism of North American workers. He states: "Es ist immer bedauerlich, wenn sich nordamerikanische Autoren mit paläarktischem Material befassen, das dann entweder nicht ausreicht oder infolge ungenügendem Verständnis für tiergeographische Möglichkeiten zu derartigen Ergebnissen führt."

#### CORRECTIONS

Since the publication of the monograph certain errors have been discovered by the author or by readers who have had the kindness to call the attention of the author to them.

The name of the author Doumergue, is spelled incorrectly throughout, "Domergue," save in the bibliography where the error was corrected. The name Geoffroy-Saint Hilaire is incorrectly spelled Geoffroy Saint-Hillaire. "Ebendaher" is given as a locality for *Eumeces algeriensis* whereas it is intended as "same locality." (See Boettger, Katalog, 1893, p. 112. The word is placed in the same special type as the place names, hence the error.) The date of publication of the article listed in the bibliography as Boulenger, 1895, is incorrect. The volume bears this date, but the individual papers were issued separately and earlier. This should read Boulenger, 1891. The date on the publication listed as Mertens, 1924a, should read Mertens, 1920. Page 82, in distribution of *Eumeces schneideri* read Western Asia, not "Eastern Asia." Page 298, include *Eumeces tetragrammus* var. *funebrosus* Cope, Ann. Rept. U. S. Nat. Mus., 1898 (1900), p. 661, in the synonymy of *Eumeces tetragrammus*. Page 360, under *Eumeces humilis*, read postmental double, not "single." The form described apparently is separable from *humilis*. Page 426, Tooele Co., Idaho, should be Tooele Co.,



Utah. Page 415, read parietals enclose interparietal, not "enclose parietal" (Line 20). Page 489, Mazatlán, 22 Km. south of Chilpancingo, not "4 miles south."

Concerning the derivation of the name *Eumeces*, Stejneger (Bull. U. S. Nat. Mus., No. 58) has suggested that the word means *elongated*. I find the following use of the word in Pliny:\* "Eumeces is a stone of Bactriana, like silex in appearance, placed beneath the head, it produces visions in the night of an oracular description," and in a footnote is added (presumably by the translator), "'Of fair length.' Ajasson thinks that this may have been a variety of pyromahic silex, or gun flint, nearly allied to chalcedony."

The appended bibliography consists chiefly of papers that have been published since the completion of my monograph on the genus, Taylor (1936), and a few titles that were unintentionally omitted from the bibliography in that work. It is complete only to the extent that it contains all titles I have been able to find. Papers marked with an asterisk (\*) have not been examined. It may be considered as a supplement to the bibliography in the monograph.

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*Eumeces obsoletus* is first recorded for Missouri.

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\* In Pliny (The Elder) Book XXXVII, chap. 28, Vol. 6, pp. 488 (Translation), Bostock and Riley, London, 1857.

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BARBOUR, THOMAS, and CARR, A. F.

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Lists *Eumeces elegans* from Yunnan; *Eumeces quadrilineatus* from an unknown locality, and *Eumeces tamdaoensis* is described as a new species, fig. 5 and pl. figs. C, D, from Tam-dao, Indochina.

Differs from *elegans* in having a postnasal and two postmentals. Young colored differently.

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Lists *Eumeces tamdaoensis*.

- 1939b. La Faune Herpétologique des stations d'Altitude du Tonkin. [Notes Herpétologique sur l'Indochine Française No. XIX.] *Bull. Gén. l'Inst. Publ. No. 4*, Déc. 1939, pp. 41-47.

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GLOYD, HOWARD K.

1937. A herpetological consideration of faunal areas in southern Arizona. Bull. Chicago Acad. Sci., Vol. 5, No. 5, 1937, pp. 79-136, figs. 1-22.

*Eumeces callicephalus* and *E. obsoletus* reported from the Huachuca Mts.

GRAF, WILLIAM, JEWETT, STANLEY G., and GORDON, KENNETH L.

1939. Records of amphibians and reptiles from Oregon. *Copeia*, 1939, No. 2, July 12, pp. 101-104.

*Eumeces skiltonianus* is recorded.

GRANT, CHAPMAN

1936a. Herpetological notes from northern Indiana. *Proc. Indiana Acad. Sci.*, Vol. 45, 1936, pp. 323-333.

*Eumeces fasciatus* listed from Jasper-Pulaski Counties State Game Preserve, and at Valparaiso, Ind.

1936b. Herpetological notes from Fort Knox, Kentucky. *Proc. Indiana Acad. Sci.*, Vol. 45, 1936, p. 334.

*Eumeces fasciatus* reported.

GREEN, N. BAYARD

1937. The amphibians and reptiles of Randolph County, West Virginia. *Herpetologica*, Vol. 1, No. 4, Nov. 16, 1937, pp. 113-116.

*Eumeces fasciatus* recorded.

1940. The symposium of West Virginia Herpetology. The herpetological collection of the West Virginia Biological Survey. *Proc. West Virginia Acad. Sci.*, Vol. 14, 1940, 1 p. (In *W. Va. Univ. Bul.*, Ser., 41, No. 4, II, Oct., 1940).

*Eumeces anthracinus* and *E. laticeps* mentioned.

1941. Amphibians and reptiles of the Huntington region. *Marshall Review*, Vol. 4, No. 2, 1941, pp. 33-40.

*Eumeces fasciatus* and *laticeps* recorded, and *anthracinus* considered hypothetical.

HAHN, WALTER L.

1908. Notes on the mammals and cold-blooded vertebrates of the Indiana University Farm, Mitchell, Indiana. *Proc. U. S. Nat. Mus.*, Vol. 35, 1908, pp. 545-581.

*Eumeces fasciatus* from New Harmony and Mitchell.

HARWOOD, PAUL D.

1932. The helminths parasitic in the amphibia and reptilia of Houston, Texas, and vicinity. *Proc. U. S. Nat. Mus.*, Vol. 81, No. 17, 1932, pp. 1-71, pls. 1-5.

*Eumeces fasciatus*, Houston, Texas, various helminth species parasitic; *Eumeces septentrionalis* mentioned, no parasites.

HARDY, ROSS.

1939. Some notes on Utah reptiles. *Proc. Utah Acad. Sci., Arts Lett.*, Vol. 16, 1939, p. 83.

*Eumeces skiltonianus skiltonianus* Clear Creek (five miles east of Zion Park boundary), Kane county; Pine Valley and Oak Grove, Washington county.

HENNING, WILLARD L.

1938. Amphibians and Reptiles of a 2,200 acre tract in Central Missouri. *Copeia*, 1938, No. 2, June 30, pp. 91-92.

*Eumeces fasciatus* and *Eumeces laticeps* listed.

HIBBARD, C. W.

1937. The amphibians and reptiles of Mammoth Cave National Park proposed. *Trans. Kansas Acad. Sci.*, Vol. 39, 1936 (1937), pp. 277-281.

*Eumeces anthracinus*, *fasciatus* and *laticeps*. First state record of *anthracinus* in Kentucky.

## HOYLE, WILLIAM LUTHER.

1937. Notes on faunal collecting in Kansas. Trans. Kansas Acad. Sci., Vol. 39, 1936 (1937), pp. 283-293.

*Eumeces obsoletus* recorded from Cowley county and Carneiro, Ellsworth county; *E. fasciatus* from Mortimer, Labette county.

## HUDSON, GEORGE E.

1942. The amphibians and reptiles of Nebraska. Nebr. Cons. Bull., No. 24, 1942, pp. i-iv, 1-146, pls. 1-20, maps 1-32.

*Eumeces fasciatus*, *multivirgatus*, *obsoletus* and *septentrionalis septentrionalis* recorded from Nebraska.

## JOPSON, HARRY G. M.

1938. Observation of the survival value of the character of the blue tail in *Eumeces*. Copeia, 1938, No. 2, June 30, p. 90.

1940. Reptiles and amphibians from Georgetown County, South Carolina. Herpetologica, Vol. 2, No. 2, Dec. 30, 1940, pp. 39-43.

*Eumeces laticeps* common.

## JOHNSON, MURRAY L.

1942. A distributional check-list of the reptiles of Washington, Copeia, 1942, No. 1, Mar. 24, pp. 15-18.

*Eumeces skiltonian* [sic] *skiltonianus* reported to be fairly common in the Cascade Range.

## KAUFFELD, CARL F.

1941. The red-tailed skink, *Eumeces egregius*, in Alabama. Copeia, 1941, No. 1, Mar. 25, p. 51.

## KING, WILLIS.

1939. A survey of the herpetology of Great Smoky Mountains National Park. Amer. Mid. Nat., Vol. 21, No. 3, May 1939, pp. 531-582, figs. 1-9.

*Eumeces fasciatus*, *E. laticeps* and *E. inexpectatus* occur.

## KLAUBER, L. M.

1939. Studies of reptile life in the arid southwest. Bull. Zoöl. Soc. San Diego, No. 14, 1939, pp. 1-100, tables 1-15.

Black peritoneum reported in *E. obsoletus* (p. 76); *E. skiltonianus skiltonianus* compared with *gilberti rubricaudatus*.

## KNOWLTON, G. F., and JANES, M. F.

1933. Lizards as predators of the beet leafhopper. Journ. Econ. Ent., Vol. 26, 1933, pp. 1011-1016.

*Eumeces skiltonianus* from 3.5 miles west of Clover, Tooele county, Utah, with a beet leafhopper in stomach.

## LAMPE, ED.

1901. Catalog der Reptilien-Sammlung (Schildkröten, Crocodile, Eidechsen und Chamaeleons) des Naturhistorischen Museums zu Wiesbaden. Jahrb. Nassau. Ver. Natur., Jahr. 54, 1901, pp. 1-46, pl. III.

*Eumeces algriensis* listed from Mogador.

## LAMSON, GEORGE HERBERT

1935. The Reptiles of Connecticut, State of Connecticut, State Geological and Nat. Hist. Survey Bull., No. 54, 1935, pp. 1-35, pls. 1-XII.

*Eumeces fasciatus* reported.



LICHTENSTEIN, H.

- \*1856. Nomenclator reptilium et amphibiorum musei zoologici berlinensis. iv, 48 pp.

Certain species mentioned. *Plestiodon quinquelineatum* recorded from México.

LINSDALE, JEAN M.

1938. Environmental responses of vertebrates in the Great Basin. Amer. Mid. Nat., Vol. 19, No. 1, Jan. 1938, pp. 1-206, figs. 1-12.

*Eumeces skiltonianus* is recorded.

1940. Amphibians and reptiles in Nevada. Proc. Amer. Acad. Arts Sci., Vol. 73, No. 8, May, 1940, pp. 197-257, figs. 1-29.

*Eumeces skiltonianus skiltonianus* reported from five counties in Nevada.

LITTLE, ELBERT L., JR.

1940. Amphibians and reptiles of the Roosevelt Reservoir area, Arizona. Copeia, 1940, No. 4, Dec. 27, pp. 260-265.

*Eumeces obsoletus* listed.

LITTLE, ELBERT L., JR., and KELLER, JOHN G.

1937. Amphibians and reptiles of the Jornada Experimental Range, New Mexico. Copeia, 1937, No. 4, Dec. 31, pp. 216-222.

*Eumeces obsoletus* reported. Food of the species is listed.

LOGIER, E. B. S.

1939. The reptiles of Ontario. Royal Ontario Mus. Handbook No. 4, 1939, pp. 1-63 + II, pls. 1-8.

*Eumeces fasciatus* discussed. Plate I figures squamation.

1941. The amphibians and reptiles of Prince Edward county, Ontario. Univ. Toronto Studies, Biol. Ser. No. 48, 1941, pp. 93-106.

*Eumeces fasciatus*, likely to be found because of its distribution.

LOGIER, E. B. S., and TONER, G. C.

1942. Amphibians and reptiles of Canada. The Canadian Field-Nat., Vol. 56, No. 2, Feb., 1942, pp. 15-16.

Lists *Eumeces fasciatus*, *E. septentrionalis septentrionalis*, and *E. skiltonianus skiltonianus* from Canada.

LOVERIDGE, A.

1930. On some skinks of the genus *Eumeces* from North America. Copeia, 1930, No. 173, Jan. 16, pp. 111-112.

LYNN, W. GARDNER

1936. Reptile records from Stafford county, Virginia. Copeia, 1936, No. 3, Nov. 15, pp. 169-171.

Records *Eumeces fasciatus*.

MANSUETI, ROMEO

1941. A descriptive catalogue of the amphibians and reptiles found in and around Baltimore City, Maryland, within a radius of twenty miles. Proc. Nat. Hist. Soc. Maryland No. 7, Dec., 1941, pp. iii + 1-53.

MARTIN DEL CAMPO, RAFAEL

1940. Nota acerca de algunos vertebrados de las lagunas de Cempoala y sus alrededores. Anal. Inst. Biol. Mexico, Vol. 11, pt. 2, 1940, pp. 741-743.

*Eumeces copei*, ovoviviparity.

## McCAULEY, ROBERT H., JR.

1939a. Notes on the food habits of certain Maryland lizards. Amer. Mid. Nat., Vol. 22, No. 1, July, 1939, pp. 150-153.

Account of the food habits of *Eumeces fasciatus* and *E. laticeps*.

1939b. Differences in the young of *Eumeces fasciatus* and *Eumeces laticeps*. Copeia, 1939, No. 2, July 12, pp. 93-95.

An excellent account of differences in eggs and young of the two species.

1940a. A distributional study of the reptiles of Maryland and the District of Columbia. Cornell Univ. Abstracts of Theses, 1940, pp. 267-269.

Reports *Eumeces anthracinus*, *E. fasciatus*, and *E. laticeps*.

1940b. A record for *Eumeces anthracinus* from Georgia. Copeia, 1940, No. 1, Mar. 30, p. 50. Corrects a record given by Taylor, (Mountain City Gap, Maryland) to Wilson Gap, near Mountain City, Rabun county Georgia. *Fide* the collector of the specimen J. C. Bradley.

## McCLELLAN, WILLIAM M.

\*Some question on *Eumeces* in Maryland. Nat. Hist. Soc. Maryland, 10th Ann. Senior Bull., Vol. 9, No. 7, pp. 59-62.

## McILHENNY, E. A.

1937. Notes on the five lined skink. Copeia, 1937, No. 4, Dec. 31, pp. 232-233.

A very vigorous account of a very large *Eumeces fasciatus* attacking wasp nests. It is probable that the "*Eumeces fasciatus*" is in reality *E. laticeps*.

## MERTENS, ROBERT.

\*1931. Zoologischer Jahrb. Jena Bd. LXI, 1931, p. 66.

*Eumeces schneideri*.

## MOORE, GEORGE A., and RIGNEY, CARL C.

1942. Notes on the herpetology of Payne county, Oklahoma. Proc. Okla. Acad. Sci., 1941, pp. 77-80.

*Eumeces fasciatus*, *obsoletus* and *septentrionalis* recorded.

## MOSAUER, WALTER.

1934. The reptiles and amphibians of Tunisia. Publ. Univ. California at Los Angeles in Biol. Sci., Vol. 1, No. 3, 1934, pp. 49-64, 1 text fig., 1 map.

*Eumeces schneideri* reported from Gafsa, Tunisia.

## MULAİK, STANLEY.

1935. Tail regeneration in *Colonyx brevis* Stejneger. Copeia, 1935, No. 3, Oct. 15, pp. 155-156.

Casual mention of food storage in the tail, in *Eumeces*.

## MURRAY, LEO. T.

1939. Annotated list of amphibians and reptiles from Chisos Mountains. Contributions from Baylor Univ. Mus. No. 24, July 15, 1939, pp. 4-16.

Reports *Eumeces obsoletus* from elevation of 5000 feet or higher.

## NECKER, WALTER L.

1938. Check list of reptiles and amphibians of the Chicago region. The Chicago Acad. Sci., Leaflet No. 1, Sept. 25, 1938, pp. [1-4].

*Eumeces fasciatus* listed.

1939. Records of amphibians and reptiles of the Chicago region, 1935-1938. Bull. Chicago Acad. Sci. Vol. 6, No. 1, July 21, 1939, pp. 1-10.

*Eumeces fasciatus*.

- 1939a. Revised check list of reptiles and amphibians of the Chicago region. Chicago Acad. Sci. Leaflet II, 1939, pp. 1-4.

*Eumeces fasciatus* from Cook and Lake Counties.

NEILL, WILFRED T.

1940. *Eumeces egregius* in Georgia. Copeia, 1940, No. 4, Dec. 27, p. 266. Lake Ormond, 4 mi. east of Augusta is the northern-most record.

NETTING, M. GRAHAM.

1935. A nontechnical key to the amphibians and reptiles of Western Pennsylvania. Nawakwa Fireside Series, Nos. 3 and 4 combined 1934-'35, Apr., 1935, pp. 33-49.

Reports *Eumeces anthracinus* from Clearfield and Clinton Counties; *Eumeces fasciatus* from Alleghany, Clarion, Center, Clinton, Huntington and Westmoreland Counties.

- 1936a. The amphibians and reptiles of Indiana county, Pennsylvania. Proc. Pennsylvania Acad. Sci., Vol. X, 1936, pp. 25-28.

*Eumeces anthracinus* and *E. fasciatus* listed as "species which probably occur."

- 1936b. Hand list of the amphibians and reptiles of Pennsylvania. Herpetology leaflet No. 1, Carnegie Mus., July 18, 1936, pp. [1-4].

Lists *Eumeces fasciatus*, *E. laticeps* and *E. anthracinus* for the state.

- 1939a. Reptiles killed on a "vermin" campaign in Mercer county, West Virginia. Proc. West Virginia Acad. Sci., 1939, Vol. 13, pp. 162-166.

*Eumeces fasciatus*.

- 1939b. The reptiles of Pennsylvania. Bien. Rept. Pa. Fish Comm., 1936-1938 (1939), pp. 122-132.

*Eumeces anthracinus*, *fasciatus* and *laticeps* recorded.

1940. *Anolis carolinensis* eaten by *Eumeces laticeps*. Copeia, 1940, No. 4, Dec. 27, p. 266.

NOBLE, G. K., and KUMPF, K. F.

1936. The function of Jacobson's organ in lizards. Journ. Genetic Psychology, 48, 2, 1936, pp. 371-382.

*Eumeces laticeps* tested.

OLIVER, JAMES H.

1937. Notes on a collection of amphibians and reptiles from the State of Colima, Mexico. Occ. Papers Mus. Zoöl. Univ. Michigan, No. 360, Nov. 20, 1937, pp. 1-28, pl. 1, text fig. 1.

*Eumeces parvulus* reported from Colima, México.

OWEN, ROBERT P.

1940. A list of the Reptiles of Washington. Copeia, 1940, No. 3, Nov. 14, pp. 169-172.

*Eumeces skiltonianus skiltonianus* listed from several localities.

PARKER, MALCOLM V.

1937. Some amphibians and reptiles from Reelfoot Lake. Journ. Tennessee Acad. Sci., Vol. XII, No. 1, Jan., 1937, pp. 60-86, figs. 1-18.

*Eumeces fasciatus* listed and figured, fig. 3-B.

1939. The amphibians and reptiles from Reelfoot Lake and vicinity, with a key for the separation of the species and subspecies. Rept. Reelfoot Lake Biol. Sta., Vol. III, Jan., 1939, pp. 72-101.  
*Eumeces fasciatus* and *E. laticeps* reported.
- PAWLING, R. OLDT.  
 1939. The amphibians and reptiles of Union county, Pennsylvania. Herpetologica, Vol. 1, No. 6, July 22, 1939, pp. 165-169.
- PEN, K. H., and Ho, W. C.  
 1932. A preliminary survey of the lizards of southwestern Szechuan. J. W. China. Border Res. Soc., 5, 1932, pp. 104-129, figs.  
*Eumeces chinensis* var. nov. is listed but the form is not named.
- PETERS, JAMES A.  
 1942. Reptiles and amphibians of Cumberland county, Illinois. Copeia, 1942, No. 3, pp. 182-183.  
*Eumeces laticeps* and *fasciatus*.
- QUAINTANCE, CHAS. W.  
 1935. Reptiles and amphibians from Eagle Creek, Greenlee county, Arizona. Copeia, 1935, No. 4, Dec. 31, pp. 183-185.  
*Eumeces obsolctus* reported from 8,787 ft. elevation on top of Rose Peak.
- RICHMOND, NEIL D., and GOIN, COLEMAN J.  
 1938. Notes on a collection of amphibians and reptiles from New Kent county, Virginia. Annals of the Carnegie Mus., Vol. 27, Dec. 23, 1938, pp. 301-310.
- RODGERS, THOMAS L., and JELLISON, WILLIAM L.  
 1942. A collection of amphibians and reptiles from Western Montana. Copeia, 1942, No. 1, Mar. 24, pp. 10-13.  
 Records *Eumeces skiltonianus skiltonianus* from Ravalli county, Montana, the first state record.
- ROUDABUSH, ROBERT L.  
 1937. Some coccidia of reptiles found in North America. Journ. Parasitology, 23, 4, 1937, pp. 354-359, figs. 1-5.  
*Eumeces septentrionalis*, negative results in examinations.
- ROUDABUSH, ROBERT, and COATNEY, G. ROBERT  
 1937. On some blood protozoa of reptiles and amphibians. Trans. Amer. Micr. Soc., Vol. 56, No. 3, 1937, pp. 291-297, pls. 1-2.  
*Eumeces septentrionalis*, negative results.
- SCHMIDT, KARL P.  
 1936a. A key to the Lizards of the United States and Canada, by Charles E. Burt (Review). Copeia, 1936, No. 2, July 31, p. 127.  
*Eumeces fasciatus* mentioned nominally.  
 1936b. A taxonomic study of the cosmopolitan Scincoid lizards of the genus *Eumeces* with an account of the distributional relationships of its species [sic] by Edward H. Taylor (Review). Copeia, 1936, No. 4, Dec. 31, pp. 242-243.  
*Eumeces septentrionalis* in Wisconsin; comments on the status of *E. laticeps* and *E. fasciatus*.

1939. Reptiles and Amphibians from southwestern Asia. Zoöl. Series Field Mus. Nat. Hist., Vol. 24, No. 27, Sept. 19, 1939, pp. 49-92, 1 map.

*Eumeces schneideri princeps* reported from Hatay and Iraq. A new subspecies *Eumeces schneideri variegatus* is described from Persepolis, Iran.

1941. The amphibians and reptiles of British Honduras. Field Mus. Nat. Hist., Zoöl. Series, Vol. XXII, No. 8, (publ. 512) Dec. 30, 1941, pp. 475-510, fig. 38.

*Eumeces sumichrasti* reported from Cohuni Ridge and Retiro. *E. schwartzei*, Cockscorn Mts., eastern slope in British Honduras.

SCHMIDT, KARL P., and NECKER, WALTER L.

1935. Amphibians and reptiles of the Chicago region. Bull. Chicago Acad. Sci., Vol. 5, No. 4, Sept. 27, 1935, pp. 57-77.

*Eumeces fasciatus* reported from Cook county, Ill., and Lake county, Indiana.

SCHWARDT, H. H.

1938. Reptiles of Arkansas. Univ. Ark. Coll. Agri. Exp. Sta. Bull., No. 357, 1938, pp. 1-47, figs. 1-53.

*Eumeces anthracinus* and *Eumeces fasciatus*, county records. On the authority of several authors, includes *laticeps* with *fasciatus*.

SCOTT, THOS. G., and SHELD AHL, REUBEN B.

1937. Black-Banded skink in Iowa. Copeia, 1937, No. 3, Nov. 19, p. 192.

Report of finding hibernating specimens of *Eumeces septentrionalis*, 52 in number, assembled in a compact group the size and shape of a football, Feb. 15, 1937. They were 4½ feet below the surface.

SHOUP, C. S., PEYTON, J. H.; and GENTRY, GLENN.

1941. A limited biological survey of the Obey River and adjacent streams in Tennessee. Journ. Tennessee Acad. Sci., Vol. 16, 1941, pp. 48-76.

*Eumeces fasciatus* from Carter Creek, Clinton county, Kentucky.

SLATER, JAMES R.

1941. The distribution of amphibians and reptiles in Idaho. Occ. papers Dept. of Biol., College of Puget Sound, No. 14, Oct. 15, 1941, pp. 78-109.

*Eumeces skiltonianus skiltonianus* "occurs throughout the state."

SLEVIN, JOSEPH R.

1937. Contributions to Oriental herpetology V. Honshu or Hondo, the neighboring islands of Sado, and Awaji, and the seven islands of Idzu. Proc. California Acad. Sci., 4th Ser., Vol. XXIII, No. 11, Dec. 30, 1937, pp. 175-190.

*Eumeces laticultatus okadae* reported from Idzu.

SMITH, HOBART MUIR.

1938. Notes on the reptiles and amphibians from Yucatán and Campeche, Mexico. Occ. Papers Mus. Zoöl., Univ. Michigan, No. 388, Oct. 31, 1938, pp. 1-22, pl. 1.

Reports *Eumeces schwartzei* from Tres Brazos and Encarnación, Campeche, México.

SMITH, MALCOLM ARTHUR.

1935. The fauna of British India including Ceylon and Burma Reptilia and Amphibia, Vol. II, Sauria. 8vo. London, Feb. 2, 1935. vii + 440, 1 pl., text figs. 1-94, 2 maps.

Treats of *Eumeces chinensis*, *E. quadrilincatus*, *E. blythianus*, *E. schneideri* and *E. taeniolatus*.

## SPRINGER, STEWART.

1928. A list of reptiles and amphibians taken in Marion county, Indiana, in 1924-1927. Proc. Indiana Acad. Sci., Vol. 37, 1928, pp. 491-492.  
*Eumeces fasciatus* listed.

## STAFFORD, W. E.

1917. Natural history of Paradise Key and the nearby Everglades of Florida. Ann. Rept. Smith Inst., 1917, pp. 377-434, 64 pls., 32 figs., 1 map.  
Discusses *Plestiodon egregius*.

## STEJNEGER, LEONHARD.

1936. Types of the amphibian and reptilian Genera proposed by Laurenti in 1768. Copeia, 1836, No. 3, Nov. 15, pp. 133-141.  
*Eumeces punctatus* mentioned; is not of the genus *Eumeces* as now understood.

## STRECKER, JOHN KERN

- 1935a. The reptiles of West Frio Canyon, Real county, Texas. The Baylor Bull., Vol. XXXVIII, No. 3, Aug., 1935, p. 32.  
*Eumeces brevilincatus* and *E. obsoletus* recorded.
- 1935b. A list of hitherto unpublished localities for Texas amphibians and reptiles. The Baylor Bull., Vol. XXXVIII, No. 3, Aug., 1935, pp. 35-38.  
Records *Eumeces brevilincatus* from several localities in McLennan county, Texas.

## STRECKER, JOHN KERN, and JOHNSON, J. E., JR.

1935. Notes on the herpetology of Wilson county, Texas. The Baylor Bull., Vol. XXXVIII, No. 3, Aug., 1935, pp. 17-23. Lists.  
*Eumeces brevilincatus*, Cibola river bottoms; and *Eumeces obsoletus*, both in Wilson county, Texas.

## SWANSON, PAUL.

1939. Herpetological notes from Indiana. Amer. Mid. Nat. Vol. 22, No. 3, Nov., 1939, pp. 684-696.  
Reports *Eumeces fasciatus* from Pike, Posey and Brown counties. Mentions a "huge eleven-inch specimen" from Brown county; *Eumeces laticeps* from Martin county.

## TANNER, WILMER W.

1940. Notes on the herpetological specimens added to the Brigham Young University vertebrate collection during 1939. Great Basin Naturalist, Vol. 1, 1940, pp. 138-146.  
*Eumeces fasciatus* from Reelfoot Lake, Obion county, Tennessee; *Eumeces s. skiltonianus* from West Canyon and Diamond Fork Canyon, Utah county, Utah, and Junction of Steamboat and North Umpqua rivers, Douglas county, Oregon.

## TAYLOR, EDWARD H.

1935. A new species of the Genus *Eumeces* from New Mexico. Uni. Kansas Sci. Bull., Vol. XXII, No. 11, 1935 (Nov. 15, 1935), pp. 219-223, text fig. 1.  
*Eumeces gagei* described.
1936. Proposed changes in the nomenclature of the scincoid lizard, genus *Eumeces*. Trans. Kansas Acad. Sci., Vol. 38, 1935 (April 25, 1936), pp. 345-347.

1936. A taxonomic study of the cosmopolitan scincoid lizards of the genus *Eumeces* with an account of the distribution and relationships of its species. Univ. Kansas Sci. Bull., Vol. XXIII, No. 1, 1935 (Aug. 15, 1936), pp. 1-643, pls. I-XLIII; figs. 1-84.  
 Monographic treatment of all known forms. *Eumeces gilberti rubricaudatus* described as new from California.
- TCHANG, T. L.  
 1936. Notes on some reptiles from South China and Kirin. Bull. Fan. Mem. Inst. Biol. (Zoöl.), Vol. VI, No. 5, 1936, pp. 223-231.  
*Eumeces elegans* from Kuatun, Fukien.
- TIHEN, JOE A.  
 1937. Additional distributional records of amphibians and reptiles in Kansas counties. Trans. Kansas Acad. Sci., Vol. 40, 1937, pp. 401-409.  
 Reports *Eumeces fasciatus* from Ness and Osage counties. "Two specimens of this lizard were found in Ness county on January 13, 1934, eight feet under ground."  
*Eumeces septentrionalis septentrionalis* reported in Comanche, Linn and Osage counties. The Comanche county specimens seem to be intergrades between *septentrionalis* and *obtusirostris*, the color resembling the latter, the squamation the former.
- TROWBRIDGE, ALBERT H.  
 1937. Ecological observations on amphibians and reptiles collected in southeastern Oklahoma during the summer of 1934. Amer. Midl. Nat., Vol. 18, No. 2, 1937, pp. 285-303.  
*Eumeces anthracinus* from 14 mi. southeast of Broken Bow, McCurtain county; *Eumeces fasciatus* from McCurtain and LeFlore counties; *Eumeces obsoletus* from McCurtain and LeFlore counties.
- TURNER, CLARENCE D.  
 1935. The effects of antuitrin-s on the male genital organs of the lizard (*Eumeces laticeps*) during seasonal atrophy. Biol. Bull., Vol LXIX, No. 1, Aug., 1935, pp. 143-158, figs. 1-13.
- VIOSCA, PERCY.  
 1926. Distributional problems of the cold-blooded vertebrates of the Gulf Coastal Plain. Ecology, Vol. VII, No. 3, July 1926, pp. 307-314.  
*Eumeces fasciatus* classified as an Eastern Austral species.
1931. Amphibians and reptiles of Louisiana. Southern Biol. Supply Co., Price list No. 20, pp. 1-12.  
*Plestiodon fasciatus*, "statewide"; *Plestiodon anthracinus*, "rare, in uplands."
- VON BLOEKER, JACK C., JR.  
 1942. Amphibians and reptiles of the dunes. Bull. Southern California Acad. Sci., Vol. 41, 1942, pp. 29-38.  
*Eumeces skiltonianus* from El Segundo San Dunes, Los Angeles county, California.
- WELTER, WILFRED, and CARR, KATHERINE.  
 1939. Amphibians and reptiles of Northeastern Kentucky. Copeia, 1939, No. 3, Sept. 9, pp. 128-130.  
*Eumeces fasciatus* listed.

WERNER, FRANZ.

1920. Reptilien und Amphibien aus dem Amanus-gebirge. Arch. Naturg. Berlin, Bd. 85 A, (8), 1920, pp. 130-141, 1 fig.

\*1935. Im Auto durch Syrien. Blatt. Aquar-Terr. Kunde, Bd. 46, 1935, pp.

1939. Die Amphibien und Reptilien von Syrien. Abh. Ber. Mus. Natur. Verges. Natur. Verein Madgeburg, Bd. VII, heft 1, 1939, pp. 211-223, pl. 15.

*Eumeces schneideri pavimentatus* is listed.